REMARKS

Claims 16-30 appear in this application for the Examiner's review and consideration. Claim 16 has been amended to further refine the claim language, while claims 20, 22, 24 and 29 have been amended to correct minor informalities as noted herein. No new matter has been introduced in making these changes, so that their entry is warranted.

Claims 16-30 were rejected under 35 USC § 112, second paragraph, as being indefinite for the reasons set forth on pages 2-3 of the action.

In response to the Examiner's comments regarding the wording of the claims, it is noted that the Examiner initially took the position that the claims of the present application were identical to those of the parent patent. It was in response to this rejection that the applicants have amended the claims so that they clearly are not identical to those of the parent case. In doing so, language that was not given patentable weight was removed from the claims. As the language of the claims is for the applicants to determine, the Examiner's suggestion is not being adopted for inserting claim language that is not given any patentable weight. In fact, the present application was re-filed to pursue the laminates regardless of the use or specific type of adhesive that is selected for final use. As a pressure sensitive adhesive is an adhesive, the claim is properly supported under Section 112.

Claims 20,22 and 24 were amended to recite that the structure is selected from a Markush group listing, and this overcomes the rejection. The Examiner's rejection of claim 24 is not understood and that claim is believed to be clear as is written. As this claim depends from claim 16, it incorporates all the features of that claim so that the entire cold lamination feature of claim 16 is present in claim 21. Also, antecedent basis for the term "item" in claim 27 does appear in claim 1 so that this rejection is not understood.

Claim 29 was amended to correct an informality therein in the spelling of un-laminated. Accordingly, all sectional 112 rejections have been overcome and should be withdrawn.

Claims 16-30 were rejected as being unpatentable over either Williams patent (i.e., the -877 or -971 patent) in view of Ohno et al. for the reasons of record.

It is important to recognize that none of the cited references disclose a cold laminated paper to plastic laminate. The Examiner now correctly recognizes that the previously cited British patent does not disclose this future, but still apparently relies on the Firestone et al. patent as an alleged showing that this feature is conventional.

First of all, it is important to note that a cold lamination is a product feature, and it is the result of cold laminating, which is a process. It has structural features in that the oriented

plastic film is bonded to the paper without loss of strength of the film and with a secure bond. This type of bond is not possible with hot melt adhesives, pressure sensitive adhesives, or with reaction cure adhesives.

Specifically, "cold laminated" describes the product that results from a cold laminating process, and defines certain properties of the laminate sheeting. The claims recite that the film is of a synthetic, oriented plastic material. A cold lamination of these oriented films and papers enables the orientation of the oriented films to be maintained in an unimpaired state and this contributes to the tear resistance and burst strength of the laminate sheeting. In contrast, a heat sealed or hot melt adhered paper and plastic film laminate would not retain the oriented properties of the plastic film since the heat used in the heat sealing or holt melt adhesive adhering operations would result in a product in which the film has weakened or relaxed portions due to the exposure to heat. Also, due to the relatively long time required for the hot melt adhesive to set, or for that matter, other adhesives that require long curing times, the oriented plastic film can relax , shrink or move and cause irregularities in the final laminate. The important point to recognize here is that the resulting product is a structure, namely, a joined paper-plastic laminate, and this is true whether it is obtained by heat sealing, hot melt adhering, reactive adhesive curing, or cold laminating. A cold lamination, however, provides unexpected benefits compared to the other forms of laminating paper and plastic. These terms define the structure that results from the method rather than the method step itself.

Furthermore, the present application is a continuation of the application which has issued as U.S. patent 6,235,386 and contains the identical disclosure. Thus, support for the present by claimed laminate is fully provided by the -386 patent. The -386 patent is a continuation-in-part of U.S. patent 5,962,099, and the disclosure which supports the present claims can be found at col. 2, line 54 to col. 3, line 52. The -099 patent is a continuation-in-part of application 07/975,080 filed November 12, 1992, and the claimed laminate is supported by pages 10-12. For the Examiner's convenience, copies of that application and the issued patents are disclosed. Thus, cold lamination and the resulting laminates produced by that method are disclosed in all prior applications, so that, based on the earlier filings the date of invention for the present claims is at least November 12, 1992.

The Finestone et al. patent is mentioned as an example of the state of the art. While this may be true as of the publication date of that patent, that date is after the filing of the present application. Moreover, both the present application and the others in the chain of priority have claims that are all co-owned by the same entity, a company currently known as

Tru-Tech, Group Inc. For that reason, the earlier filed Firestone et al. patent is not prior art to the present application and does not disclose the state of the art prior to applicants' filing. Accordingly, the Examiner's reliance on the Firestone et al. patent is misplaced and should be withdrawn. If the knowledge of cold lamination is so prevalent in the art, there should be no problem to cite other references disclosing this feature. Applicants submit that, to the contrary, cold lamination in a paper-plastic laminate is the inventive contribution of the present inventors and their assignee, and to their knowledge, there are no prior art references that disclose this feature as claimed herein.

A number of prior art references that were cited against copending applications are submitted herewith for the Examiner's review and consideration. None of these disclose a cold lamination laminate, as claimed. Furthermore, a laminate made by a cold lamination process whereby an energized plastic film is joined to paper by a water-based adhesive provides unexpectedly improved properties compared to other to other laminates. These advantages include:

1. retention of the oriented properties of the film after lamination;

2. a very strong bond between the plastic film and the paper due to the energizing of the plastic surface and the use of the water-based adhesive; and

3. excellent alignment, adherence, and dimensional stability between the paper and plastic because of the instantaneous set of the adhesive due to absorption of the water of the adhesive by the paper.

In contrast, laminates of paper and plastic made by other joining techniques are subject to different problems.

- For laminates made using pressure sensitive adhesives, the adherence of a strong bond is not possible due to air bubbles or an entrainment between the sheets. Also, if the pressure sensitive adhesive contacts another portion of that adhesive, they will stick together and cause difficulty in making the laminate.

- For laminates made using hot melt adhesives, a number of problems are encountered. The temperature of the adhesive can affect the orientation of the film and cause it to relax or lose strength in different areas. These areas also can cause wrinkling or warpage of the laminate. More importantly, the time that is required for the hot melt adhesive to set and cure is sufficiently long to allow the film and paper ply to move relative to each other during further processing before the adhesive sets, this further contributes to the wrinkling and poor dimensional stability of the resulting laminate.

Similar problems are experienced with reaction cure adhesives. Again, there is a significant time delay until the adhesive sets and cures, and the sheets can move relative to each other before that occurs. In addition, many if not all of these adhesives require heat to expedite or reduce the curing time, and such heating can cause loss of the orientation of the film. Finally, many of these type adhesives include organic solvents, and this present environmental problems with regard to cleanup and recovery of such solvents.

Accordingly, one of ordinary skill in the art is now aware of the major advantages provided by a laminate of paper and plastic that is made by cold lamination with a water-based adhesive, and this is one of the unexpected advantages of the invention.

Turning now to the cited references, the Williams '877 patent discloses a laminate of a pre-stretched and oriented plastic film that is joined to a carrier layer pf Kraft or other paper by 'any adhesive as is commonly used for gluing plastic films to paper, as is known in the art" (col. 3, lines 24-26). There is no disclosure of the type of adhesive that could be used for this purpose, and there is no specific mention of a water-based adhesive or of a cold laminating process for adhering the film to the paper layer. In addition, the patent further discloses that the plastic film provides "virtually all the necessary strength" of the tape, while the paper layer is used "only as a medium to 'carry' the a water-soluble adhesive that otherwise could not be applied to the plastic layer and to provide the longitudinal rigidity to permit the tape to be dispensed (col. 3, lines 30-36).

In contrast, the present invention includes a number of structural differences. The treatment of the plastic film surface by corona discharge activates that surface to render it receptive to adhesives. Thus, in applicants' invention, the activated plastic film surface can be adhesively cold laminated to the paper layer, and can receive the pressure sensitive adhesive, if desired. Williams '877 notes that the plastic film cannot receive a water-soluble adhesive, so that there would be no suggestion in the Williams '877 patent to put any adhesive on the exposed surface of the plastic film.

Furthermore, the type of adhesive that is used to laminate the plastic film to the paper layer is important in order to retain in the laminate the properties and strength of the oriented film. Notably, Williams '877 is silent on this type of adhesive, but he does recognize that a water-based adhesive cannot be applied to the plastic layer. Thus, Williams '877 must have used hot melt or reaction curable adhesives as these would adhere to the plastic film. Those types of adhesives, however, affect the properties of oriented film and also present problems in laminating the materials together, since the oriented film could relax while waiting for the hot melt or reaction curable adhesives to set or cure. In addition to a loss of strength, the

final product is often warped or curled. Thus, the Williams '877 patent is not relevant to the presently claimed invention.

The Williams '971 patent also acknowledges the deficiencies of the Williams '877 patent. In fact, it mentions that the tape of the Williams '877 patent has the problem of lack of adherability of the adhesive containing surface to the outer plastic film surface when the film is overlapped onto itself (see col. 1 line 67 to col. 2, line 4). Thus, the Williams '971 patent is directed to the use of a permeable layer, such as paper, that is laminated to the plastic film layer by an adhesive. This adhesive layer is again described as any adhesive as is commonly used for gluing plastic films to paper, as is known in the art. As in the Williams '877 patent, this is not a disclosure of a water-soluble adhesive that can be used to cold laminate an energized plastic film surface to a paper layer. Again, the "prior art" adhesives can lead to previously noted problems of strength loss and warpage of the final product. Also, there is no disclosure that a pressure sensitive adhesive can be applied to the plastic film as in the present invention. Again, it is important to utilize a corona discharge treatment to activate the surface of the plastic film prior to applying the water-soluble adhesive thereto and cold laminating the plastic film to the paper layer as well as prior to the application of the pressure sensitive adhesive to the outer surface of the plastic film.

The Examiner's belief that it was known in the art to utilize a corona discharge treatment to improve the surface energy of a plastic film is correct, but the recognition of conducting this step immediately prior to the application of the adhesive is not clearly taught by any prior art reference. Instead, it is applicants who have discovered the benefits in adhesion that are achieved by subjecting the surface of the plastic film to a corona discharge treatment prior to the application of the water-based adhesive. Moreover, applicants submit that others in the art were not aware of the importance of this step and cite the later issued Williams patents as failing to recognize the advantages in obtained by using this step.

The Ohno patent is directed to a multi-layer tape product that includes two plastic films and a fabric layer. The plastic layers are adhered to the fabric base by heating the films to over 300°C and then extrusion laminating the heated film to the fabric base. After forming the laminate, a pressure sensitive adhesive is applied to the outer exposed surface of the fabric or one of the plastic layers. While Ohno does disclose the use of a corona discharge treatment, it is only onto the fabric base or a non-oriented plastic layer. Furthermore, in Ohno, it is the fabric layer, rather than the plastic layer, that provides strength to the laminate. If the plastic films provided strength, then the resulting laminates would be stiff and not have the necessary feel to imitate a fabric.

Also, in each case where a plastic layer is used, it is heated as noted above and then subjected to extrusion calendaring for adherence to the fabric base to form the laminate. Thus, the plastic layer cannot be stretched and oriented in the Ohno laminates because the heating step would deleteriously affect the strength properties of such an oriented film or layer. Moreover, even if the plastic layer is somehow stretched while hot, it would likely shrink while cooling to cause warpage in the final laminate. This cannot be tolerated in a tape product according to the present invention.

For all these reasons, the Ohno patent is non-analogous art compared to the Williams patents and is not properly combinable except upon a hindsight reconstruction of the prior art using applicants' specification as a template or guide. The Court of Appeals for the Federal Circuit has recognized in many decisions that this procedure is inappropriate for formulating prior art rejections. In addition, Ohno has no paper layers in his laminates and does not utilize cold lamination of plastic films to paper utilizing a water soluble adhesive. In view of all of the above, the rejection based on the combination of the Williams and Ohno patents has been overcome and should be withdrawn.

Applicants submit that the entire application is now in condition of allowance, early notice of which would be appreciated. Should the Examiner not agree with the Applicants' position, then a personal or telephonic interview is respectfully requested to discuss any remaining issues and expedite the eventual allowance of the application.

Respectfully submitted,

Date: 5/23/03

Allan A. Fanucci (Reg. No. 30,256)

WINSTON & STRAWN
Customer Number 28765
(212) 294-3311

NY:778449.1